

## CLAIMS

We claim:

1. A non-naturally occurring non-halophyte plant comprising a tissue with an elevated level of sodium substantially in the vacuole when cultivated in high salt.
2. The non-naturally occurring non-halophyte plant of claim 1 wherein the elevated level is at least two fold higher compared to the level of sodium in a comparable naturally occurring plant.
3. The non-naturally occurring non-halophyte plant of claim 1 wherein the elevated level is at least three fold higher compared to the level of sodium in a comparable naturally occurring plant.
4. The non-naturally occurring non-halophyte plant of claim 1 wherein the elevated level is at least four fold higher compared to the level of sodium in a comparable naturally occurring plant.
5. The non-naturally occurring non-halophyte plant of claim 1 wherein the elevated level is at least five fold higher compared to the level of sodium in a comparable naturally occurring plant.
6. The non-naturally occurring non-halophyte plant of claim 1 wherein the elevated level is at least ten fold higher compared to the level of sodium in a comparable non-transgenic plant.
7. The non-naturally occurring non-halophyte of claim 1 wherein the elevated level is at least twenty fold higher compared to the level of sodium in a comparable non-transgenic plant.
8. The non-naturally occurring non-halophyte plant of claim 1 wherein the tissue is leaf tissue.

9. The non-naturally occurring non-halophyte plant of claim 1 wherein the tissue is root tissue.

10. The non-naturally occurring non-halophyte plant of claim 1 wherein said plant is selected from the group consisting of canola and safflower.

11. The non-naturally occurring non-halophyte plant of claim 1 wherein the plant comprises a transgene.

12. The non-naturally occurring non-halophyte plant of claim 11 wherein the transgene induces vacuolar accumulation of salt.

13. The non-naturally occurring non-halophyte plant of claim 12 wherein the transgene comprises a first nucleic acid encoding a vacuolar Na<sup>+</sup>/H<sup>+</sup> transporter.

14. The non-naturally occurring non-halophyte plant of claim 13 wherein the first nucleic acid is selected from the group consisting of the following:

(a) a nucleic acid molecule of the coding strand shown in SEQ ID NO:1, or a complement thereof;

(b) a nucleic acid molecule encoding the same amino acid sequence as encoded by the nucleotide sequence of (a);

(c) a nucleic acid molecule that hybridizes to the sequence set forth in SEQ ID NO:1 or the complement of the sequence set forth in SEQ ID NO:1 under highly stringent conditions that include at least one wash in 0.1xSSC, 0.1% SDS, at 65° C for thirty minutes; and

(d) a nucleic acid molecule encoding a plant NHX transporter polypeptide that hybridizes to the sequence set forth in SEQ ID NO:1 or the complement of the sequence set forth in SEQ ID NO:1 under moderately stringent conditions that includes at least one wash in 0.1xSSC, 0.1% SDS, at 50° C for thirty minutes.

15. The non-naturally occurring non-halophyte plant of claim 14 wherein the transgene further comprises a second nucleic acid operably linked to the first nucleic acid, wherein the second nucleic acid comprises a plant promoter.

16. The non-naturally occurring non-halophyte plant of claim 15 wherein the promoter is the 35 S promoter.

17. The non-naturally occurring non-halophyte plant of claim 15 wherein the promoter is the CaMV promoter.

18. The non-naturally occurring non-halophyte plant of claim 16 wherein the plant is canola.

19. The non-naturally occurring non-halophyte plant of claim 16 wherein the plant is safflower.

20. A transgenic non-halophyte seed produced from the plant of claim 1.

21. A method of lowering the salt content of soil comprising:

a) cultivating the non-naturally occurring plant of claim 1 in the soil;

b) harvesting the non-naturally occurring plant; and

c) removing the non-naturally occurring plant.

22. The method of claim 21 wherein the initial electrical conductivity of the soil is at least 20 dS/M.